T-1

CZECHOSLOVAKIA/Human and Animal Physiology. Metabolism.

Author : Ref Zhur - Biol., No 18, 1953, 83836

Author : Vodrazka, Zdenek; Pristoupilova, Kamila
Inst :
Title : Photooxidation of Blood Protein. VII. Changes of Amino Acid Composition.

Orig Pub : Chem. listy, 1957, 51, No 9, 1657-1662

Abstract : No abstract.

Card 1/1

Vodrazka Zdenek

[illegible] of blood plasma proteins. I. Zdeněk [illegible] Ústav [illegible] Prague [illegible] Czech. Listy 48 [illegible]. The effect of pH on the [illegible] of various ionic strengths was followed by automatic registration of the turbidity. The curves thus obtained were not equil curves. Conditions [illegible] equilibriums in mixts. were studied [illegible] (J. Hudlický)

VODRAZKA, Z.; CEJKA, J.

Theory of the oxygenation of hemoglobin. Coll Cz Chem 30 no.1:316-32, Ja '65.

1. Institute of Hematology and Blood Transfusion, Prague.
Submitted July 21, 1964.

VODRAZKA ZDENEK

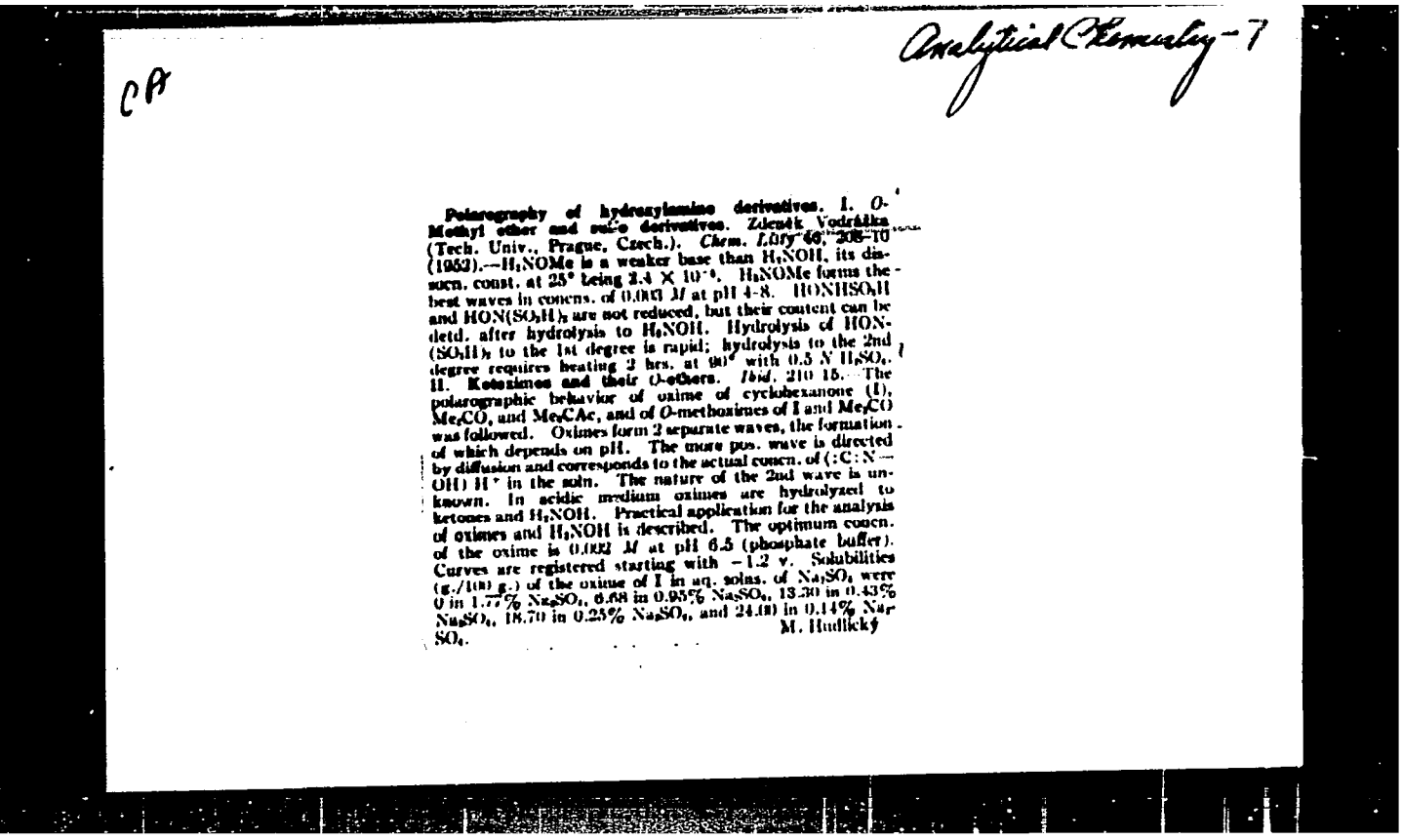
(2) 1

Equilibrium in the acidic hydrolysis of cyclohexanone oxime. Zdeněk Vodrážka (Vysoká škola chem., Prague, Czech.). *Chem. Listy* 47, 992–8(1953).—In the study of the equil. in the reaction of ketones with NH_2OH, the polarographic detn. of free NH_2OH proved to be superior to other analytical methods such as iodometric or colorimetric detns. From both the polarographic and the iodometric method, the equil. const. of hydrolysis of cyclohexanone oxime was found to be (0.243).

M. Hudlický

C. A. 7

Polarographic determination of hydroxylamine. Zdeněk Vodrážka (Tech. Univ., Prague, Czech.). *Chem. Listy* 45, 293-7(1951).—Polarographic detn. of NH_2OH is based on a 2-electron reduction to NH_4. It is carried out in slightly acidic buffered solns. at pH 6-7, 10^{-4} *M* concns. are determinable; at pH 3-4, 10^{-3} concns. are required.
M. Hudlický



CA

Analytical Chemistry - 7

Polarography of hydroxylamine derivatives. I. *O*-Methyl ether and sulfo derivatives. Zdeněk Vodrážka (Tech. Univ., Prague, Czech.). *Chem. Listy* 46, 208–10 (1952).—H_2NOMe is a weaker base than H_2NOH, its dissocn. const. at 25° being 2.4×10^{-8}. H_2NOMe forms the best waves in concns. of 0.003 *M* at pH 4–8. $HONHSO_3H$ and $HON(SO_3H)_2$ are not reduced, but their content can be detd. after hydrolysis to H_2NOH. Hydrolysis of $HON(SO_3H)_2$ to the 1st degree is rapid; hydrolysis to the 2nd degree requires heating 2 hrs. at 98° with 0.5 *N* H_2SO_4. II. **Ketoximes and their *O*-ethers.** *Ibid.* 210–15. The polarographic behavior of oxime of cyclohexanone (I), Me_2CO, and Me_2CAc, and of *O*-methoxines of I and Me_2CO was followed. Oximes form 2 separate waves, the formation of which depends on pH. The more pos. wave is directed by diffusion and corresponds to the actual concn. of (:C:N—OH) H^+ in the soln. The nature of the 2nd wave is unknown. In acidic medium oximes are hydrolyzed to ketones and H_2NOH. Practical application for the analysis of oximes and H_2NOH is described. The optimum concn. of the oxime is 0.002 *M* at pH 6.5 (phosphate buffer). Curves are registered starting with −1.2 v. Solubilities (g./100 g.) of the oxime of I in aq. solns. of Na_2SO_4 were 0 in 1.77% Na_2SO_4, 6.68 in 0.95% Na_2SO_4, 13.30 in 0.43% Na_2SO_4, 18.70 in 0.25% Na_2SO_4, and 24.0 in 0.14% Na_2SO_4.

M. Hudlický

CZECHOSLOVAKIA

TRAVNICEK, T., SULC, K., TRAVNICKOVA, E., VODRAZKA, Z; Institute of Pathological Physiology and Physiological Institute, Faculty of General Medicine, Charles University, Institute of Hematology and Blood Transfusions (Ustav Patologicke Fysiologie a Fysiologicky Ustav Fak. Vseob. Lek. KU; Ustav Hematologie a Krevni Transfuze), Prague.

"Separation of Hemoglobin on CM-Sephadex G-50 in Adult Rats After an Acute Blood Loss."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 2, Feb 66, p 125

Abstract: Experiments were conducted with 20 male rats, 2, 4, 7 and 14 days after blood loss. The composition of individual hemoglobin fractions is compared to that of rats that did not suffer the blood loss. 1 Figure, 2 Western, 3 Czech references. Submitted at "16 Days of Physiology" at Kosice, 28 Sep 65.

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2

CZECHOSLOVAKIA

TRAVNICKOVA, E., TRAVNICEK, T., SULC, K., VODRAZKA, Z; Chair of Physiology, Chair of Pathological Physiology, Faculty of General Medicine, Charles University, Institute of Hematology and Blood Transfusions (Katedra Fysiologie, Katedra Patologicke Fysiologie FVL KU, Ustav-Hematologie a Krevni Transfuse), Prague.

"Changes in Hemoglobin Separation on CM-Sephadex After Repeated Loss of Blood by Young Rats."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 2, Feb 66, pp 125-126

Abstract: After repeated loss of blood, young rats resist hypoxia and anoxia better. Experiments with animals aged 5 to 35 days showed that after the blood losses the animals have only one or two hemoglobin fractions, which is typical of animals 5 days old and younger; normally 4 fractions are found after the 15th to 24th days of life. 1 Figure, 5 Czech references. Submitted at "16 Days of Physiology" at Kosice, 28 Sep 65.

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CZECHOSLOVAKIA

POLANSKY, F, Docent Dr; VIHAN, R; VODRAZKOVA, A.

Second Clinic of Tuberculosis of the Faculty of General Medicine of KU (II. klinika tuberkulozy fakulty vseobecneho lekarstvi KU), Prague (for all)

Prague, Rozhledy v tuberkulose, No 8, 1963, pp 563-568

"Resistance Against Major Antituberculosis Drugs in Cases of Relapse of Pulmonary Tuberculosis."

VODROS, D.

Determination of current efficiency in aluminium furnaces. L. Bozóky and D. Vodros. *Magyar Tudományos Akad. Központi Fiz. Kutató Intézetének Közleményei*, 6, 285-91 (1958).—The current efficiency of Al furnaces was detd. by the method of isotope diln. An Al-Au alloy was prepd. by using 2.6-day Au^{198} of known sp. activity. This solid alloy was added to an unknown quantity of Al which was then melted. Some of the Au-Al is recovered and the sp. activity detd., which is now lower than that of the added alloy. From the ratio of the 2 sp. activities and the known amt. of Al added, the amt. of the Al in the furnace can be calcd., and thus, the current efficiency. E. Rona

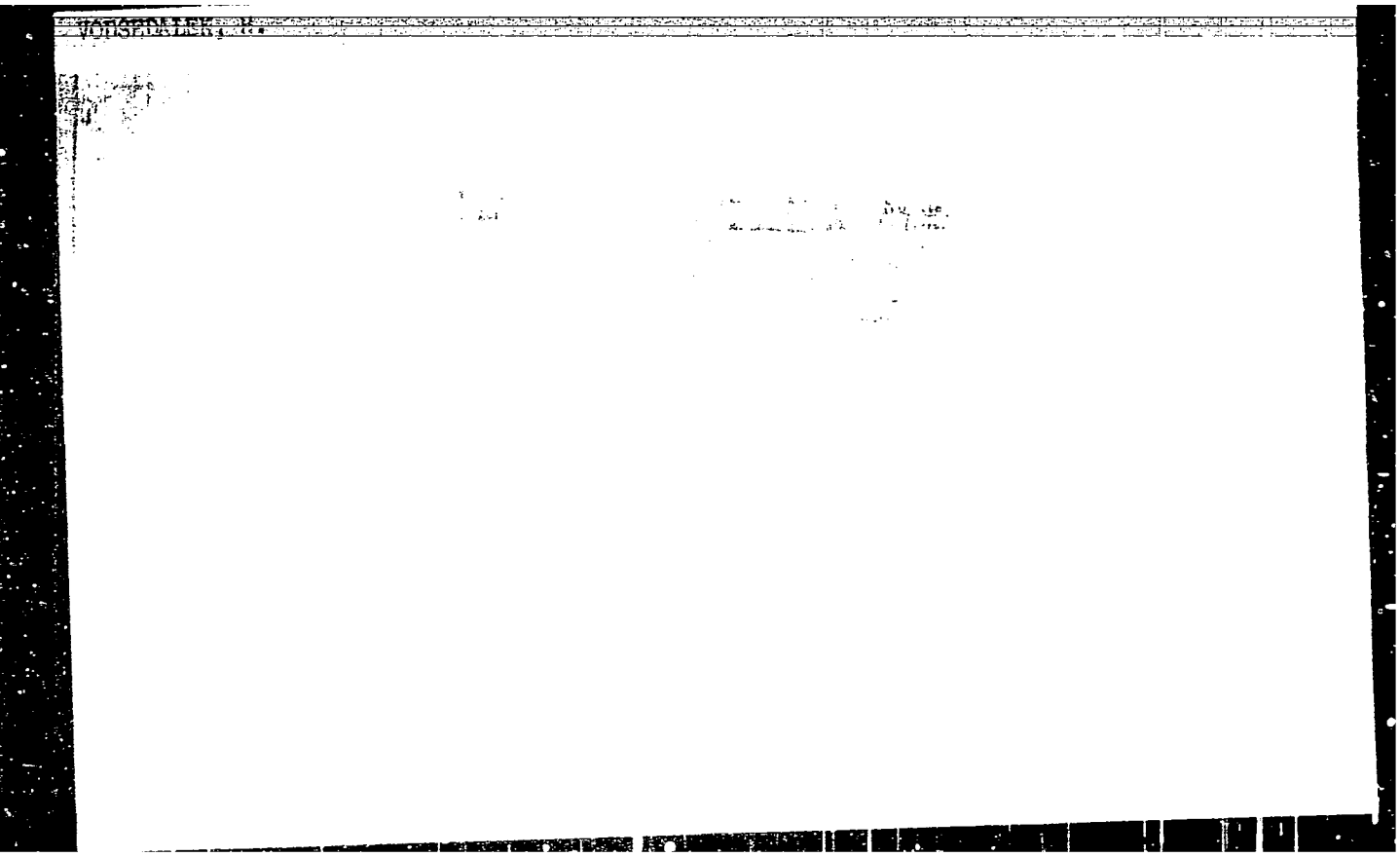
VODROV, Tonsa

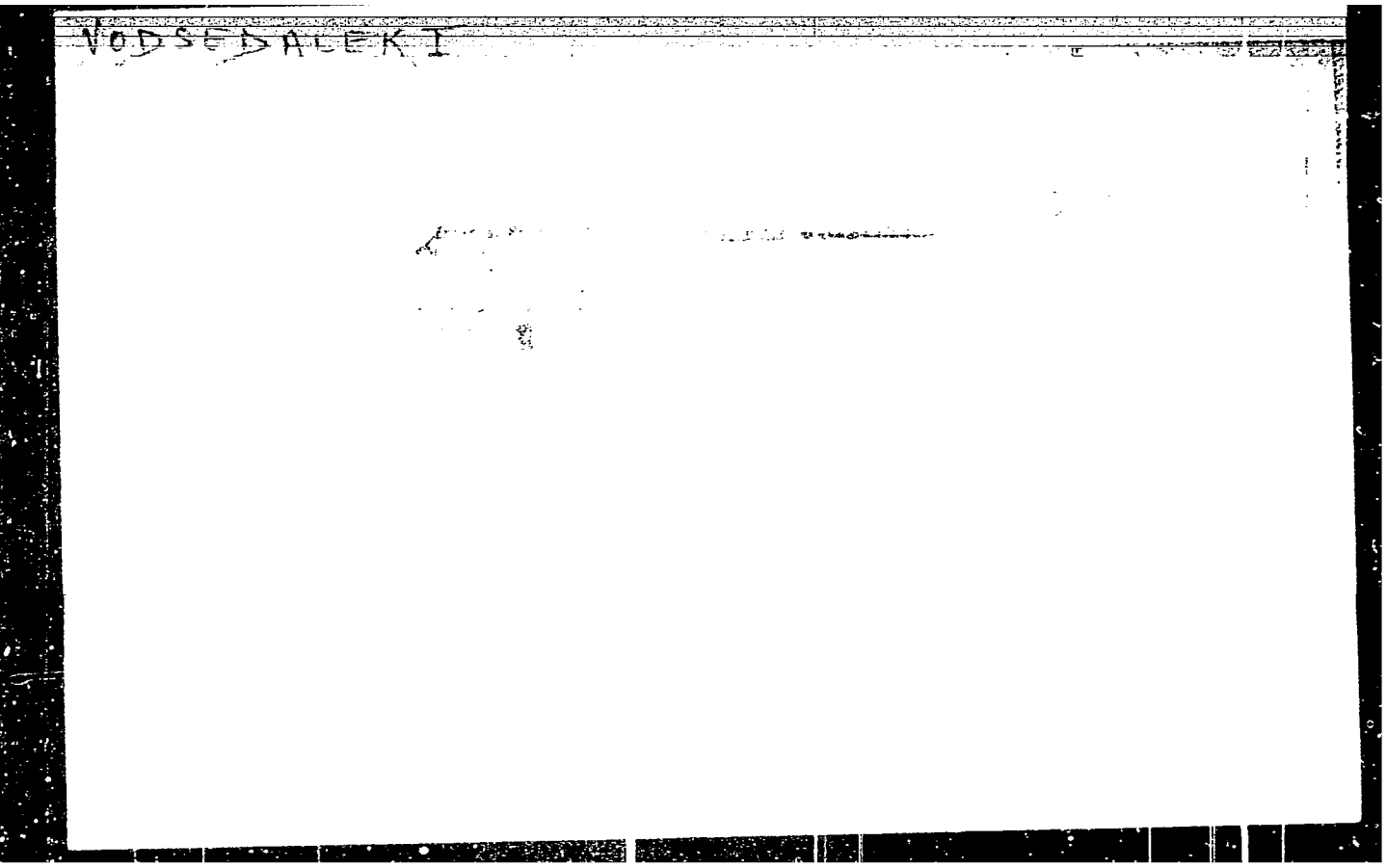
A useful conference for the advancement of welding techn ques.
Zavarivanje 4 no.7:148-149 S '61.

1. Tvornica "Janko Gredej".

VODROV, Tonsa

The founding convention of the Club of Welders at the Janko Gredelj Works. Zavarivanje 6 no.1:22-24 Ja '63.





ESD(dp)/RAEM(c)/ESD(t)/

AUTHOR: Vodsedyalek, I.

TITLE: Internal friction in steels with 12% Cr

SOURCE: Sb. Relaksats. yavleniya v met. i splavakh. M., Metallurgizdat, 1963, 170-[illegible]

TOPIC TAGS: internal friction, steel, chromium, chromium steel, stress, annealing, temperature, hysteresis, magnetic field

Card 1/2

L 16570-65

ACCESSION NR: AR4045998

induction change V on the cyclic and static H and the hysteresis loop

mined by the maximum value of the stress cycle. The magnitude of internal friction depends also to a significant degree on the action stress lowers internal

field.

SUB CODE: MM, AS ENCL: 00

L 21350-66 T/EWP(t) IJP(c) JD/HW

ACC NR: AP5016667 SOURCE CODE: CZ/0065/65/000/003/0257/0272

AUTHOR: Voboril, Josef—Voborzhil, Yosef; Pech, Radovan—Pekh, Radovan; Vodsedslek, Josef—Vodsedyalek, Yosef

ORG: State Research Institute of Materials and Technology, Prague (Statni vyzkumny ustav materialu a technologie)

TITLE: Relations between precipitation processes and properties of creep-resistant Ni-Cr base alloys

SOURCE: Kovove materialy, no. 3, 1965, 257-272

TOPIC TAGS: nichrome alloy, metal property, phase precipitation, metal stress, temperature effect, rupture strength, phase transformation, creep, creep resistance

ABSTRACT: Principal structural constituents in Ni-Cr alloys (phases γ', η, carbides, σ, and others and conditions of their occurence are described. On the basis of the authors' experiments and certain data from the literature, it is possible to draw some general conclusions concerning the precipitation of different phases in Ni alloys. The Ni-Cr alloys work always under conditions where the precipitable γ-phase has already been precipitated. The best properties of the alloy are attained at a certain size of the γ-phase particles and the test conditions (stress, temperature, and time of rupture). The TiC is the most stable carbide occuring in the Ni-Alloy. It is followed by (in the order of decreasing stability): M_6C, $M_{23}C_6$, and M_7C_3. The

Card 1/2

L 21350-66

ACC NR: AP5016667

η-phase forms either directly from the solid solution or by transformation from the γ'-phase. In alloys containing Mo, W, Fe, or Co with high contents of Al and Ti, σ-phase can begin to form, especially after long-time service. The range and conditions of the occurence of the σ-phase may be determined by calculations. Orig. art. has: 17 figures and 2 tables. [Based on authors' abstract.] [NT]

SUB CODE: 11/ SUBM DATE: 06Jan65/ OTH REF: 024/

Card 2/2

L 01510-66 EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) MJW(CL)/JD/HW

A

ACCESSION NR: AP5021036 CZ/0078/65/000/008/P018/P018

AUTHOR: Vystyd, M. (Engineer) (Prague); Vodsedalek, J. (Engineer) (Prague); Sefl, P. (Engineer) (Prague); Pacholik, E. (Prague); Zivnustka, F. (Prague)

TITLE: Creep-resistant nickel-base alloy

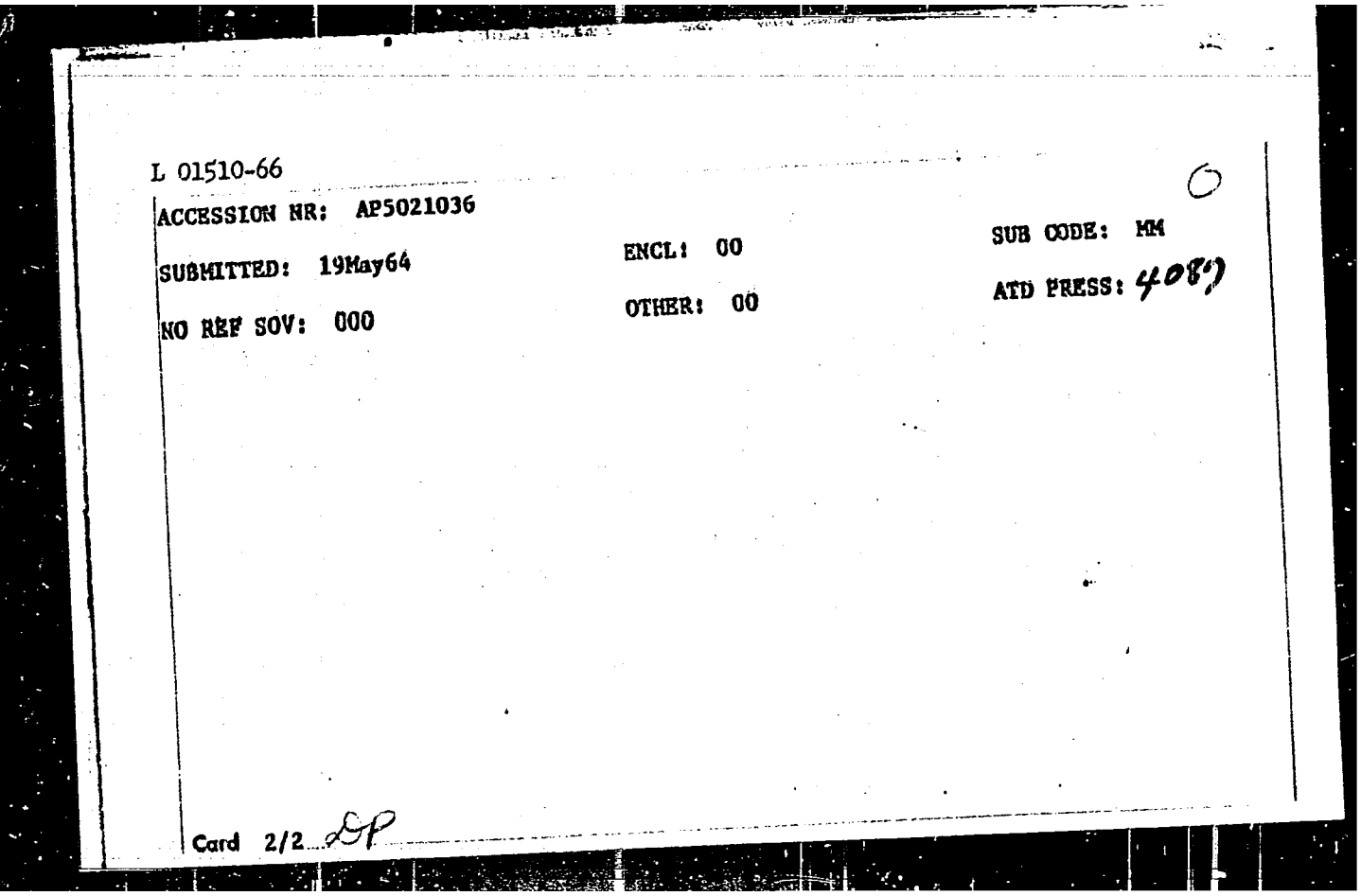
SOURCE: Vynalezy, no. 8, 1965, p. 18 of supplement

TOPIC TAGS: alloy, heat resistant alloy, nickel alloy, chromium containing alloy, molybdenum containing alloy, tungsten containing alloy, cobalt containing alloy, titanium containing alloy, aluminum containing alloy, boron containing alloy, zirconium containing alloy

ABSTRACT: This Czech patent introduces an age-hardenable nickel-base alloy which has a very high creep strength at temperatures up to 1000C. The alloy contains 0.05—0.50% carbon, 0.50% max manganese, 0.50% max silicon, 8.0—15.0% chromium, 3.0—5.0% molybdenum, 2.0—5.0% tungsten, 0.5—12.0% cobalt, 0.5—6% titanium, 4.0—8.0% aluminum, 0.005—0.2% boron, 0.01—0.50% zirconium, and 3.0% max iron.

ASSOCIATION: none

Card 1/2 [DV]



L 01510-66

ACCESSION NR: AP5021036

SUBMITTED: 19May64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 00 ATD PRESS: 4089

Card 2/2 GP

L 10818-63 EWP(q)/BDS--ASD--JD

ACCESSION NR: AP3000088 Z/0034/63/000/005/0319/0328

AUTHOR: Vodsedalek, J. (Engineer, Candidate of sciences); Kasik, I. (Engineer)

TITLE: Electroslag melting of heat-resistant alloys 16

SOURCE: Hutnicke listy, no. 5, 1963, 319-328

TOPIC TAGS: heat-resistant alloy, nickel-base alloy, gas-turbine-blade alloy, electroslag melting, alloying-element loss

ABSTRACT: The effect of electroslag melting on composition, structure, and mechanical properties of an Ni-Cr-base gas-turbine-blade alloy has been studied. Six induction-melted alloy heats containing 0.8 to 0.15% C, 0.11 to 0.50% Si, 0.31 to 0.46% Mn, 14.65 to 16.08% Cr, 1.23 to 1.80% Ti, 1.10 to 2.07% Al, 4.64 to 5.59% W, 3.23 to 4.37% Mo, 0.004 to 0.008% S, 0.001 to 0.013% P, 0.008 to 0.040% B, and 0.047 to 0.095% Zr (one heat contained also 13.84% Co) were cast into cylindrical ingots 25 or 50 mm in diameter, which, butt-welded in threes, were used as consumable electrodes for electroslag melting in a mold 120 mm in diameter under a slag containing 70% CaF_2 and 30% Al_2O_3. As a result of

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electroslag melting, Ti and Al lost on the average 6.2 and 23.6%, while Si and Fe gained on the average 69.6 and 81.9%, of the respective original contents. Changes in S and P contents were erratic but generally insignificant. The O_2 and H_2 contents were equal to or somewhat lower than those in conventionally melted alloys of similar composition; the N_2 content was considerably higher, but the finely dispersed carbonitrides were uniformly distributed throughout the alloy matrix. The effect of electroslag melting on mechanical properties was manifested generally in higher ductility, better uniformity and lesser anisotropy of the strength and ductility characteristics, and better hot ductility. For instance, at 20C a cast electroslag-melted alloy austenitized at 1150C for 2 hr and aged at 800C for 16 hr had, in the longitudinal and transverse directions, tensile strength of 76.2 to 81.2 kg/mm^2 and 67.7 to 74.3 kg/mm^2 and elongation of 16.2 to 27.5% and 6.3 to 8.5%, respectively. Corresponding figures for a conventionally melted alloy of similar composition were 61.9 to 70.5 kg/mm^2 and 1.0 to 5.3% (longitudinal), and 48.8 to 57.8 kg/mm^2 and 1.3 to 1.5% (transverse). The lowest 100-hr rupture strength of the cast electroslag-melted alloy at 750, 800, and 850C was 30, 21, and 14.5 kg/mm^2 at a total elongation of 26.0, 32.8, and 32.8%, respectively. Corresponding figures for forged conventionally melted alloy were 36, 26, and 16 kg/mm^2 and 2.3, 2.0, and 4.1%. Fatigue strength of
c

L 10818-63 2
ACCESSION NR: AP3000088

cast electroslag alloy, 16 kg/mm^2, is only slightly lower than that of forged conventionally melted alloy, 18 kg/mm^2. Orig. art. has: 12 tables and 14 figures.

ASSOCIATION: SVUMT; VUHZ

SUBMITTED: 00 DATE ACQ: 17Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 011 OTHER: 003

mcs/ku
Card 3/3

ACC NR: AP6033022 SOURCE CODE: CZ/0032/66/016/007/0533/0538

AUTHOR: Vodsedalek, J.

ORG: none

TITLE: Effect of high-temperature annealing upon the properties at the NiCr alloys

SOURCE: Strojirenstvi, v. 16, no. 7, 1966, 533-538

TOPIC TAGS: nickel chromium alloy, high temperature annealing, nickel chromium alloy property, ANNEALING, NICKEL BASE ALLOY, CHROMIUM CONTAINING ALLOY

ABSTRACT: Research on the effect of high-temperature annealing on the properties of NiCr alloy parts led to the conclusion that such annealing has a negative effect on strength and ductility. The drop of strength and ductility is caused by the loss of boron and carbon. Since the diffusion rate of carbon and boron at high temperature is very high, decarburizing and deboronizing reaches to a considerable depth. Aluminum and chromium coatings can protect the alloy from loss of boron and carbon.

SUB CODE: 11 / SUBM DATE: none/

Card 1/1 UDC: 669.245:669.26:621.785.3:621.785.1

S/137/62/000/006/121/163
A052/A101

AUTHORS: Vodšed'álek, Josef, Vystyd, Miloš, Tykva, Jaroslav, Váša, Čestmír, Sícho, Miroslav

TITLE: Materials for gas turbine blades

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 56, abstract 61330 ("Materiál. sb. SVUMT. 1959". Praha, 1960, 57 - 114, Czechoslovakian; Russian, English and German summaries)

TEXT: The high-temperature alloy of Poldi AKNTs grade was investigated in a cast and forged state. Besides long-life strength of the material, relaxation, fatigue and damping, thermal expansion, heat conductivity, E and thermal impact resistance of the material were determined. An investigation of the alloy in a forged state has shown that the values of mechanical and heat-resistance properties are in accordance with the literature data for nimonic-80A alloy. However, by means of a special heat treatment it was possible to achieve higher characteristics. The alloy is sensitive to stress concentrations on account of its low ductility at rupture. In a cast state the heat-resistance properties are good,

Card 1/2

S/137/62/000/006/121/163
A052/A101

Materials for gas turbine blades

however there is a larger spread of results. σ_w of the material in a cast state is lower than that of the material in a forged state.

T. Rumyantseva

[Abstracter's note: Complete translation]

Card 2/2

VODSEDALEK Josef, inz., ScC.; VYSTYD, Milos, inz., ScC.

Refractory alloys on the Ni-Cr base for castings.
Zpravodaj VZLU no.2:67-71 '63.

VODSEDALEK, Josef, inz., ScC.

Present state of the Ni-Cr steels and alloys for highest parameters. Zvar obor 10 no.4:434-451 '61.

1. Statni vyzkumny ustav materialu a technologie, Praha.

S/137/62/000/006/157/163
A057/A101

AUTHOR: Vodsedálek, Josef

TITLE: The modern state of Ni-Cr-steels and alloys for superhigh parameters

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 6 - 7, abstract 6E39 ("Zvárač. sb.", 1961, v. 10, no. 4, 434 - 451, Czechoslovakian; Russian, German and English summaries)

TEXT: Austenitic steels or special alloys have to be used necessarily for highly loaded parts at temperatures above 600°C. Some difficulties arise in production and application of austenitic steels. Their principal disadvantages are: low σ_s and high coefficient of thermal expansion. At high temperatures undesirable changes arise, which lead to a deterioration of mechanical properties, mostly brittleness. The structural resistance depends entirely upon the composition, which has to prevent the formation of the σ-phase, separation of carbides along the boundaries of grains and intermetallic phases. A review is given of the properties of basic types of austenitic Cr-Ni-steels produced in the USSR and abroad. The further development of Cr-Ni-steels envisages strengthening by alloying solid

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S/137/62/000/006/157/163
A057/A101

The modern state of...

solutions with Co, Mo, W, V, etc., as well as by means of intermetallic phases. Besides, an important role plays strengthening of grain boundaries with B, Zr, and other additives. An increase of endurance, creep-resistance, and also an increase of plasticity and weldability can be effected by means of vacuum or electroslag remelting in order to reduce the destructive additions.

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

Z/032/62/013/008/003/004
E073/E335

AUTHOR: Vodsedalek, J.

TITLE: Possibilities of further development of materials for use in gas turbines

PERIODICAL: Strojírenství, v. 13, no. 8, 1962, 635.

TEXT: The possibility was investigated of improving further the creep strength of a number of heats of the Ni-base type alloy, containing 15% Cr, 10% Co, 4% Mo and 5% W with additions of B and Zr, by adding Al and Ti. Optimum properties were achieved for a total Ti + Al content of about 5-7% but alloys with over 6% proved to be very brittle. Addition of Co proved favourable. The alloys were prepared by smelting in an induction furnace and tilt-cast to a shape of accurately cast rods, whilst the further heats were centrifugally cast, In addition to investigating the properties of the cast heats, the properties of three heats were investigated which were forged and remelted in vacuo. Particular attention was paid to resmelting by the electroslag method. Thus prepared materials had a considerably

Card 1/2

Possibilities of Z/032/62/013/008/003/004
E073/E335

improved ductility and a resistance to cyclic stresses.

Report No. Z-61-1023, SVÚMT, Prague, 1962.

[Abstractor's note: Complete translation.]

Card 2/2

Z/046/61/000/004/006/009
D007/D102

AUTHOR: Vodsedálek, Josef, Engineer, Candidate of Sciences

TITLE: The current state of NiCr steels and alloys for highest parameters

PERIODICAL: Zváračský sborník, no. 4, 1961, 434-451

TEXT: The author gives a general survey of CrNi austenitic steels and alloys developed in the CSSR and other countries for power equipment operating at temperatures above 600°C and supercritical pressures. He classifies and compares these metals according to their creep strength, structural stability and weldability, and tabulates the chemical composition and creep-strength values of domestic and foreign CrNi austenitic steels and alloys. The CSSR produces and/or is developing the following CrNi austenitic steels: Poldi AKVS (CSN 17 246) which can be considered refractory but has only limited stability due to its δ-ferrite content and σ-phase formation; Poldi AKVSB which has lower Cr and higher Ni contents. Despite eventual α and σ-phase formation, the notch toughness never drops below 14 mkg/cm^2; Poldi AKRE whose creep strength is improved by W and V addition;

Card 1/3

Z/046/61/000/004/006/009
D007/D102

The current state of NiCr steels .....

AKRV 1 which is based on the Soviet EI 695 R steel (still in the developmental stage); AKRM (ČSN 17 322) especially suitable for valves; Poldi AKRN which is a typical hardenable blade steel with Ti and Al addition; and LV 3 which is an AKRN steel with Al and B addition and is used for precision castings. The following high-temperature alloys are produced and/or being developed in the ČSSR: AKNC (LV 4) and the refractory AKNK; VZU 60 which is easier to produce and process; and AKNW and AKND, similar to the Soviet EI 765 and the British Nimonic 95 alloys respectively, which are still being tested. The future development of high-temperature steels and alloys will proceed along various lines: (a) Modification of the chemical composition, e. g. by the addition of Co, Mo, W, V, etc., for hardening, B and Zr for higher creep strength and plasticity, etc; (b) Improvement of the production processes, e. g. vacuum and/or electroslag melting to reduce the trace-element content and thus achieve higher creep strength; (c) Development of alloys with new bases (high-melting alloys, cermets). There are 9 figures, 4 tables and 11 references: 7 Soviet-bloc, 3 non-Soviet-bloc.

Card 2/3

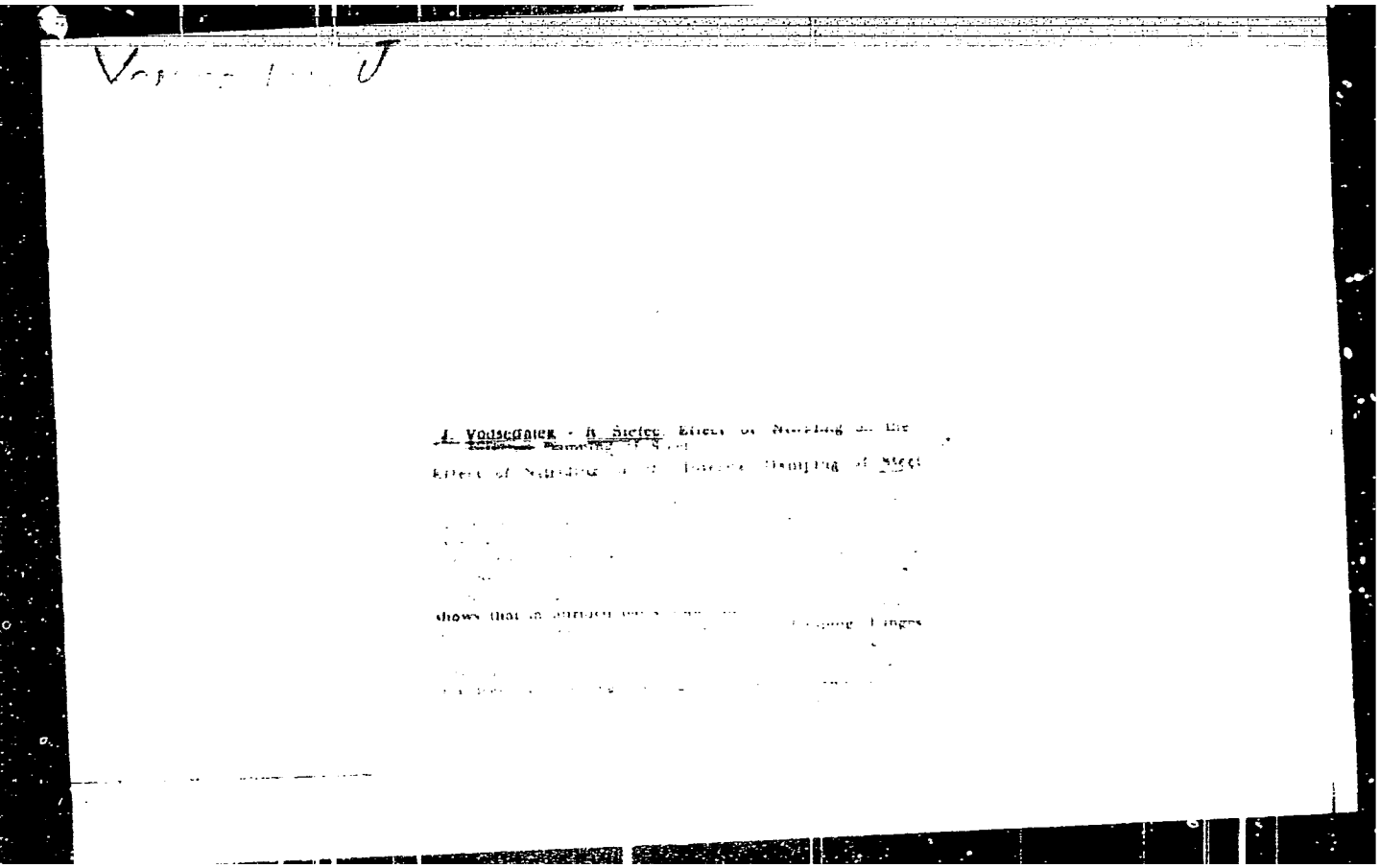
Z/046/61/000/004/006/009
D007/D102

The current state of NiCr steels .....

and 1 unidentified. The references to the 2 English-language publications read as follows: F.R. Morall, Alloys for the Aircraft Industry. The role of cobalt. Cobalt 1960, no. 1; A. Taylor, Journal of Metals 8, 1956, no. 10, 1956. (Technical Editor: Doctor L. Herman of the VÚZ Bratislava).

ASSOCIATION: SVÚMT Praha (SVÚMT Prague)

Card 3/3



Z/034/62/000/001/008/011
E073/E535

AUTHORS: Čižek, L. Vodsedálek, J. Vása, Č. et al

TITLE: Heat-resistant hardenable steel 15Cr35NiTi

PERIODICAL: Hutnické listy, no.1, 1962, 62

TEXT: On current 5 ton heats of the steel AKRN the basic properties which are important from the point of view of utilisingit in steam and gas turbines were determined, namely, the mechanical and physical properties, the creep strength and creep rate, resistance to relaxation, the resistance to fatigue at elevated temperatures, the resistance to thermal shock, resistance to oxidation in air, to erosion by steam and corrosion in some aggressive solutions. The internal damping under conditions of fatigue and creep were investigated paying particular attention to heat treatment which is optimum from the point of view of creep and fatigue. An analysis was made of the structural phenomena which take place during heat treatment and ageing of the steel AKRN in the shaped and in the as-cast states.
Research Report SVÚMT Z-00-847.
211 pages, 157 figures and diagrams, 52 tables.

Card 1/1 [Abstractor's note: Complete translation.]

Vodsedalek, J.

CZECHOSLOVAKIA/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Substances E-10

Abs Jour : Ref Zhur - Fizika, No 3, 1958, No 6042

Author : Vodsedalek, J.
Inst : Not Given
Title : Internal Friction in Austenitic Steels

Orig Pub : Strojirenstvi, 1956, 6, No 11, 757-762

Abstract : Detailed description of the results of investigations performed over a wide range of loads and of working temperatures on the deforming abilities of refractory steels to which chromium, nickel, cobalt and other metals have been added. The criterion introduced for the suitability of the material is the quantity $K = \sigma_c \varphi(\sigma_c)$, where σ_c is the fatigue limit under the given conditions, and $\varphi(\sigma_c)$ is the logarithmic decrement of attenuation with cyclic σ_c. The author discusses problems of the fatigue endurance at high temperature, the influence of the value of the initial amplitude of the vibrations, and prolonged static and cyclic stressed states.

Card : 1/2

- CZECHOSLOVAKIA/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Substances E-10

Abs Jour : Ref Zhur - Fizika, No 3, 1958, No 6042

The mechanism of damping of vibrations in austenitic steels is connected by the author with the occurrence and motion of dislocations and with formation of new phases. Bibliography, 16 titles.

Card : 2/2

Z/506/60/000/000/002/004
I037/I237

AUTHORS: Vodsed'álek, Josef, Engineer, Vystyd, Miloš, Engineer, Tykva, Jaroslav, Engineer, Vása Šicho, Miroslav (Čestmír) and

TITLE: Materials for gas turbine blades

SOURCE: Prague. Statni vyzkumny ustav materialu a technologie. Materialovy sbornik, 1959. Prague, 1960, 57-114

TEXT: Modern gas turbine blades reach temperatures of up to 1000°C. Great interest is given to cast blades. The properties of blades cast from the alloy Poldi AKNC (80 Ni - 20 Cr admixtures of Ti, Al) were compared with the forged alloy. Alloys having different admixtures of Ti and Al (1-3%) and smaller quantities of Mn, Si with traces of C, P, S, were investigated by measuring: creeping strength, relaxation, fatigue, damping, thermal expansion, electric conductivity, Young's modulus and thermal shock resistance.
For creeping strength tests, sticks were preheated for annealing in air for up to 16 hrs at temperatures between 700°C - 1080°C in case I and 700°C - 1200°C in case II. At 750°C in case I a strength

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Materials for gas...

limit of 15 kg/mm^2 for 1000 h. and in case II a limit of 19 kg/mm^2 for 1000 h were achieved. At stresses greater than 15 kg/mm^2, the alloy Poldi AKNC is inferior to the English alloy Nimonic 80A. At lower stresses (longer time or higher temperatures) the two alloys are equivalent. Heat treatment (case II) applied gradually considerably improved Poldi AKNC. The creep properties of castings are also very good but results vary more than for the forged alloy. Fatigue can be tested by several methods: (bending at rotation, alternate bending, stress - compression test) with different results. The normally treated alloy has a somewhat higher limit of fatigue at alternate stress and at smaller prestress, whereas the specially heat treated alloy is superior at higher prestress. The fatigue properties of normally treated Poldi AKNC are similar to those of Nimonic 80 A. There is a relation between grain size and limit of fatigue. From here follows the low fatigue limit for castings. The internal damping in Poldi AKNC is relatively small. It is dependent on temperature and prestressing.

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Z/506/60/000/000/002/004
I037/I237

Materials for gas...

Heat shock resistance was checked in SVÚMT instrument in which wedge shaped samples were repeatedly heated (up to 800°C in 3 min.) and cooled (at a rate of 200°C/sec). The cracks formed in this process were then plotted as a function of the number of cycles (repetitions). The forged AKNC is superior in this respect to the cast alloy. Relaxation measurements show that Poldi AKNC does not tend to plastic deformation. Electrical and thermal conductivity as a function of temperature were measured (the first is nearly constant, the second increases linearly with the temperature). The model of elasticity is considerably higher in the forged than in the cast material. Some methods of hardening of the alloy are given and photographs showing the surface structure are presented.
There are 70 figures, 16 tables and 31 references. The English references include: Betteridge W., Franklin, A.W. J. of Inst. Metals, 85, 473 (1956-7). Taylor, A. J. of Metals 8, 1356 (1956). McLean, D. J. Inst. Metals 85, 481 (1956-57).

Card 3/3

26012
Z/036/60/000/004/001/001
A005/A126

26.2120

AUTHORS: Vystyd, Miloš, Vodsedálek, Josef, and Suchomel, Dragomír

TITLE: Cast high-temperature alloys for gas tubine blades

PERIODICAL: Slévárenství, no. 4, 1960, 111 - 114

TEXT: The author lists advantages and disadvantages of cast and wrought alloy gas tubine blades, describes high-temperature alloys used in foreign states and compares them with the "Poldi AKNC" alloy produced in the ČSR. He describes the investment casting method employed by the První brněnská strojírna (Mechanical Engineering Plant) in Brno. In cooperation with the "První brněnská strojírna, závody K. Gottwalda" in Brno, the "SVÚMT - Státní výzkumný ústav materiálu a technologie" (State Research Institute for Materials and Technology) in Prague, conducted creep strength, fatigue strength, physical property and heat-impact resistance tests on "Poldi AKNC-L" alloy. The test rods were centrifugally cast into molds, produced by the lost-wax process. The alloy was tested after 2 different heat treatments: normal treatment (solution annealing at 1,080°C/4 hrs/air hardening at 700°C/16 hrs/air) and gradual treatment (solution annealing at 1,200°C/4 hrs, intermittent annealing at 1,000°C/16 hrs/air, and hardening at 700°C/16 hrs/

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Cast high-temperature alloys for gas turbine blades

/air). Gradual heat treatment caused separation of Cr_7C_3 on boundary grains which proved very advantageous. "Poldi AKNC-L" alloy castings showed better creep strength than "Nimonic" alloy castings, and "AKNC-L" castings with normal heat treatment have properties similar to "Nimonic 80A" wrought alloy, while properties of "AKNC-L" castings with gradual heat treatment resemble those of "Nimonic 90" wrought alloy. Fatigue tests were made at 20, 650 and 700°C comparatively on an hf and a "Schenk" pulsator and produced same results. The fatigue limit at 20°C is approximately 10 kg/mm^2 lower than that of a wrought part but increases with increasing temperature. However, the fatigue limit decreases considerably under tensile stress and is already 16.5% lower at a prestress of 5 kg/mm^2. The amount and size of cracks, originating after repeated heating and water-shower quenching of wedge-shaped samples, was measured on an apparatus, developed for this purpose by the SVÚM. Test results indicate that the "AKNC-L" cast alloy produces somewhat worse results, especially at lower temperatures.. The "První brněnská strojírna" introduced centrifugal investment casting of radial turbine impellers and axial-flow bladed rims both used in superchargers. The impeller wheels are 80 - 130 mm in diameter, weigh 0.20 - 1.45 kg, have 10 - 17 blades and operate at 650°C with 45,000 rpm. The bladed rims are 152 - 420 mm in diameter, weigh 0.6 - 8.5 kg, have

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Z/036/60/000/004/001/001
A205/A126

Cast high-temperature alloys for gas turbine blades

41 - 51 blades and operate at 650 C with 2,800 - 12,200 rpm. The "Poldi AKNC" alloy used is melted in "ACEC" in induction furnaces with basic lining. The casting temperature is kept between 1,580 and 1,610°C, the revolution rate of molds is varied according to the size of the casting from 450 to 1,100 rpm. Cast impellers are produced much more economically than wrought and machined impellers and up to 90% of material can be saved. There are 10 figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: P. R. Toolin: Symposium on Strength and Ductility at Elevated Temperatures. ASTM Spec. Tech. Publ. no. 128, 142.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute for Materials and Technology in Prague)(Vystyd and Vodsedálek); První brněnská strojírna, závody K. Gottwalda in Brno (Suchomel)

Card 3/3

S/137/63/000/001/016/019
A006/A101

AUTHORS: Vodseďálek, Josef, Váša, Čestmír

TITLE: Austenitic heat-resistant hardening steel for forgings and castings

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1963, 61, abstract 1I344P (Czechosl. patent no. 102219 of January 15, 1962)

TEXT: For parts, operating at temperatures up to 750°C, a cheaper steel grade was proposed to replace the expensive Nimonik steel type. The composition of this steel is: C 0.04 - 0.15%, Cr 12 - 20%, Ni 30 - 42%, W 1 - 4%, Mn $\leq$ 2.0%, Si $\leq$ 1.0%. The dispersion hardenability of the steel is attained by adding 0.8 - 1.5% Ti, 1.5 - 4.0% Al. An increase in strength properties is brought about by adding B 0.01 - 0.15%. W in the steel can be replaced by an equal amount of Mo. Co in an amount as high as 5.0% increases the steel ductility without a noticeable decrease of the strength properties. Addition of 0.3% Li and 0.5% Zr improves considerably deoxidation of the steel. Admixtures of Zr and B strengthen the grain boundaries. The necessary Ti and Al amount in the steel is determined from the empiric equation $2Q_{Ti} + 3Q_{Al} = k[t + (100-150)]$ where Q_{Ti} is the weight % of

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A006/A101

Austenitic heat-resistant hardening steel...

Ti; Q_{Al} is the weight % of Al; t is the operational temperature (550 - 750°C), k = 0.008. Heat treatment of the steel consists in heating to 1,100 - 1,200°C, holding for 1 - 4 hours, cooling in air and aging at 700 - 800°C, for 16 - 24 hours to H_B 250 - 350. Steel, containing in %: C 0.07, Cr 14.94 , Ni 34.57, W 2.70, Mo 1.23, Ti 0.90, Al 2.78, B 0.097, the rest Fe, has in cast state, after heat treatment at 1,150°C, 1 hour air cooling, aging at 750°C for 20 hours, the following properties: σ_{100} at 650, 700 and 750°C is equal to 34, 30.5 and 25 kg/mm^2, σ_{100} at the same temperatures is 31, 28 and 18 kg/mm^2 and $\sigma_{10,000}$ at the same temperatures is 26, 18 and (12) kg/mm^2.

G. Rymashevskiy

[Abstracter's note: Complete translation]

Card 2/2

89306

Z/034/61/000/004/002/005
E073/E335

18.1130

AUTHOR: Vodseďálek, Josef, Engineer

TITLE: Development of Cast Creep-resisting Steel 15Cr35Ni3W

PERIODICAL: Hutnické listy, 1961, No. 4, pp. 270 - 275

TEXT: Production was started recently in Czechoslovakia of hardenable creep-resisting austenitic steel Poldi AKRN, containing 15% Cr, 35% Ni and 3% W, which is hardened by adding 1.5% Ti and 0.5% Al. It combines typical properties of austenitic and creep-resisting NiCr steels. It has a high creep strength, a good structural stability and sufficient ductility. After resmelting this steel can be used for casting without any further additions; the creep-resistance will be approximately the same as it is for rolled material and for forgings. Extensive work of Mirkin et al (Refs. 2, 4), who investigated the influence of Mo, W, Nb and Co additions on materials with Ni contents of 25, 35 and 45% has shown that the Ni content can be reduced without reducing appreciably the creep values. The author of this paper was mainly

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Development of ....

concerned with studying the influence of aluminium. According to results of Soviet authors, who did not study the influence of aluminium in great detail, aluminium has a favourable influence on the creep values but it makes forging more difficult. With increasing aluminium and titanium content not only the hardness but also the tendency to intercrystallite fracture will increase, whereby the latter tendency can be stressed by adding boron. The system of experimental heats was chosen to obtain various aluminium contents between 0.12 and 7%; the titanium contents were at two levels of about 1 and 1.5% (owing to practical difficulties the Ti contents varied between 0.77 and 1.62%). B was first added only to some of the heats but later its content was increased due to its markedly favourable effect. The experimental heats were produced in a 25 kg medium-frequency induction furnace with a basic lining. Pure metals were used in the heats; Ti was introduced as an NiTi alloy containing 10% Ti; Fe was introduced in the form of soft steel ČSN 12013; B was introduced as ferroboron. The chemical compositions of the

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experimental heats are listed in Table 1. After smelting, the melt was teemed into heated graphite crucibles and after a certain holding time at 410 °C it was cast into moulds producing 60/90 x 150 mm ingots. Creep tests were carried out after the following heat treatment: a) solution annealing at 1 150 °C for one hour, cooling in air, precipitation hardening at 750 °C for 20 hours; b) solution annealing at 1 200 °C for two hours, cooling in water, hardening at 750 °C for 20 hours; c) no solution annealing, hardening at 750 °C - 20 hours. From the point of view of creep properties, method (a) proved to be the most favourable and only this was used in subsequent experiments; only in a single case (to facilitate production) were rods made of austenised specimens which were then hardened. The results of the mechanical tests are plotted in Fig. 1 as a function of the temperature, °C, for specimens from the heat P3, with heat-treatment a , and in Fig. 2 for specimens from the heat 4 (heat-treatment after casting: hardening at 750 °C - 20 hours). Creep tests were made on machines with creep loads up to 2 000 kg for periods

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of 1 000 hours and for periods of up to 14 000 hours, respectively. Some of the tests are still in progress. The test programme was so chosen that the results could be evaluated with one of the parametric methods. The Larson-Miller method was chosen for preliminary evaluation (C = 20) and, after terminating the tests, the constant was determined which gave the smallest scattering values. Thereby, particular care was taken that the results of the longest and thus the most valuable tests should be as near to the guiding line as possible. More attention was also paid to the statistical value of the results of the creep tests but the results of the statistical evaluation are not given in this paper. Soviet specialists consider elongation as being the most suitable criterion during strength tests and they specify a minimum elongation during fracture after 3 000 hours of 2-3%. Whether this specification is or is not justified, it is a fact that if these values are achieved no premature fractures will occur during the first or the second creep stage. In such tests the temperature must obviously be taken into consideration.

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E073/E335

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Hardening and ageing tests were carried out in the temperature range 650 - 800 °C for durations of 1 000 - 2 000 hours and some measurements enabled supplementing the results with tests obtained for periods of over 10 000 hours. On the basis of the obtained results the following conclusions are arrived at: By adding suitable quantities of Ti, Al and B and possibly also Mo to an alloy containing 15% Cr, 35% Ni and 3% W, a material with excellent creep strength can be obtained. In the best experimental heats values were obtained for a temperature of about 750 °C, which equal those of Ni-Cr-Co Nimonic 90. The effect of Al and Ti, for Ti contents between 1 and 1.7%, on the 1 000-hour creep strength at 650, 700 and 750 °C and on the ductility during fracture (after 1 000 hours) is plotted in Fig. 22 (σ_{pt}, kg/mm^2; ε, % versus Al + Ti in %). The best creep-strength values were obtained for a content of about 1% Ti and 2% Al. From the point of view of ductility during fracture and structural stability, it is preferable to have an Al content of 1.5 to 2%, for which there is no danger of σ-phase formation. Boron additions in quantities exceeding

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E073/E335

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its solubility in a solid solution have a very favourable effect on strength, 0.05 - 0.07% B being the most suitable quantity. Alloys containing 35% Ni are suitable for use in the temperature range 650 - 750 °C and for short-durations also at 800 °C. Above this temperature the effect of hardening disappears and there is a rapid drop in the hardness and strength of the alloy. Alloys of this composition can be welded by the argon-arc method, using the additional (electrode) material VZÚ 60 or material of a composition equalling that of the base metal. There are 22 figures, 4 tables and 7 references: 2 Czech and 5 non-Czech.

ASSOCIATION: SVÚMT, Praha (SVÚMT, Prague)

SUBMITTED: October 20, 1960

Card 6/8

Z/034/63/000/001/012/012
E073/E151

AUTHOR: Vodsedálek, J.

TITLE: Internal damping of turbine blade materials

PERIODICAL: Hutnické listy, no.1, 1963, 75

TEXT: The report describes the mechanism of internal damping, its relaxation, the plastic and magneto-mechanical components of damping, methods of investigating the magneto-mechanical component of damping, and the results of damping measurements in 12% Cr steels, type AK2MV, AK2WC, 200r12MoMV and 200r12MoWNbB. The tests showed that the magneto-mechanical component of damping does not disappear, and is not substantially reduced even if the material has undergone basic structural changes. The plastic component, however, decreases very rapidly during operation.
Research Report SVÚMT Z-62-1114.
34 pages, 55 figures, 3 tables, 15 references.

[Abstractor's note: Complete translation.]

Card 1/1

VODSEDALEK, Josef, inz.

Development of the cast creep resisting steel type 15Cr35Ni3W.
Hut listy 16 no.4:270-275 Ap '61.

1. Statni vyzkumny ustav materialu a technologie, Praha.

CZECH/34-59-1-7/28

AUTHORS: Vodseďálek, Josef, Ing. and Šicho, Miloslav

TITLE: Properties of Chromium-Nickel Austenitic Steels Shaped at Low Temperatures (Vlastnosti chromniklových austenitických ocelí tvářených za nízkých teplot)

PERIODICAL: Hutnické Listy, 1959, Nr 1, pp 38-43 (Czechoslovakia)

ABSTRACT: Paper read at the Conference "Czechoslovak Metallurgical and Foundry Days 1958".
Experiments were carried out on AKVS 18/8 Ti steels from two melts of the following compositions which were deformed at -196°C: 0.08% C, 0.67% Mn, 0.71% Si, 0.013% P, 0.005% S, 18.53% Cr, 9.48% Ni, 0.60% Ti and 0.11% C, 0.55% Mn, 0.69% Si, 0.010% P, 0.009% S, 18.95% Cr, 8.77% Ni, 0.60% Ti. It was found that this material has certain properties which are valuable for highly stressed components. It has a high strength and outstanding toughness, a high fatigue limit and relatively high internal damping; its resistance to cavitation is high and it also has a high resistance to seizing and corrosion. Therefore, this steel is very suitable for springs located in aggressive media, for turbine blades of the final stages which are exposed to

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Properties of Chromium-Nickel Austenitic Steels Shaped at Low Temperatures

humid steam, for compressor blades and for various valves, bolts etc. intended for operation in chemical equipment. The main question is what method should be used to obtain economically the necessary degree of shaping at such low temperatures. The solution is relatively easy for drawn wires and profiles; in some cases local shaping, for instance by means of rolls, would be adequate. In the paper results are given of tests relating to the following: metallographic investigations, thermal expansion, magnetic properties, fatigue strength (in tension-compression cycles), internal damping, resistance against erosion and cavitation, resistance to seizing, intercrystallite and stress corrosion.
There are 23 figures and 2 Tables and 14 references, 4 of which are Czech, 7 English, 2 Soviet, 1 German.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute for Materials and Technology, Prague)

SUBMITTED: September 25, 1958

Card 2/2

VODŠEDALEK, J.

Chromium steel for the blades of steam turbines. p. 3.

(Energetika. Vol. 7, no. 1, Jan. 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

VODSEDALEK, J. ;SICHO, M.

Properties of austenitic chromium-nickel steel cast at low temperatures. p. 38.

HUTNICKE LISTY. (Ministerstvo hutniho prumyslu a rundnych dolu a Ceskoslovenska vedecka spolecnost pro hutnictvi a slevarenstvi) Brno, Czechoslovakia, Vol. 14, No. 1, Jan. 1959.

Monthly List of East European Accession, (EEAI), LC, Vol. 8, No. 12, Dec. 1959. Uncl.

67103

18.8200

AUTHOR: Vodsedálek, J., Engineer CZECH/34-59-12-26/44

TITLE: Internal Damping of Refractory Steels and Alloys, Particularly Under Creep Conditions

PERIODICAL: Hutnické listy, 1959, Nr 12, pp 1125-1130

ABSTRACT: Paper presented at the "Symposium on Problems of Development of Creep-Resisting Materials", Mariánské Lázně, September 11-13, 1959. Section III. First, the author gives a theoretical analysis of the mechanism of damping of metals, particularly under creep conditions. The magneto-mechanical component in ferromagnetic materials and the plastic component in austenitic steels are considered as being the major factors in damping. In the experimental part of the paper the method of testing is described as well as the results obtained on 13% Cr steels, non-hardenable austenitic Cr-Ni steels, precipitation hardenable austenitic Cr-Ni steels and creep resisting nickel alloys. The chemical compositions, the mechanical values and the conditions of heat treatment of all these steels are listed in Table 1, p 1126. The internal damping and the fatigue strength under cyclic tension-compression

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Internal Damping of Refractory Steels and Alloys

stresses were determined by means of tests carried out with a specially built resonance type HF pulsator of a frequency of 180 cycles/sec. It was established that the magneto-mechanical component of damping is practically not influenced by the ageing of the material at the operating temperature or by the cyclic stressing; the temperature and the magnitude of static prestressing are the main factors in the magneto-mechanical component of damping. The plastic component is influenced by the number of stress cycles, the test temperature, the structural condition of the material (degree of precipitation hardening, magnitude of the plastic strain, grain size etc.) and the magnitude and duration of the static and cyclic stresses. The obtained results lead to the following conclusions: 1) stainless 13% Cr steels possess intensive magneto-mechanical damping. Although this damping component usually decreases for static tensile and compressive stresses for some of the steels (for instance Poldi AK1), the damping remains remarkably constant under static stress for the steel AK2WC and

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Internal Damping of Refractory Steels and Alloys

shows no substantial changes during fatigue and creep loading below 600°C.
2) In austenitic (i.e. nonmagnetic) steels the plastic component is the predominant one. Up to a certain "critical" temperature, of about 300°C, the absolute magnitude of the damping increases with increasing cyclic stresses. However, the damping decreases if this "critical" temperature is exceeded.
3) The damping tests with the Cr-Ni-W-Ti 15/36/2/2 (Poldi AKRN) precipitation hardened steels proved that at a sub-critical temperature, even if a certain degree of blocking of the dislocations occurs, the slowing down effect of the "atmosphere" of dislocations is sufficiently pronounced even for very short distances. In the range of supercritical temperatures the damping decreases more intensively even in the case of a low degree of hardening due to the low resistance of the "atmosphere".
4) Special nickel blading alloys (Nimonic 80, EI-765 etc.), which are prone to intensive precipitation hardening, have a low internal damping. It is noteworthy that in hardenable steels and alloys, for which the initial

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Internal Damping of Refractory Steels and Alloys

damping is much lower than for non-hardenable austenitic steels, the damping under fatigue at high temperatures or under the influence of pre-stressing does not decrease to values which are as low as those pertaining to non-hardenable steels.
There are 16 figures, 2 tables and 14 references, 4 of which are Czech, 1 Soviet, 2 German and 7 English.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute for Materials and Technology, Prague)

4

Card 4/4

VODSEDALEK, J.; STEFEC, R.

Effect of nitriding on the internal damping of steel.

P. 9. (HUTNICKE LISTY.) (Brno, Czechoslavakia) Vol. 12, No. 1, Jan. 1958

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, May 1958

VODSEDALEK, J. ; CIZEK, L.

"Poldi AKRN austenitic heat-resistant steel." p. 439.

STROJIRENSTVI. (MINISTERSTVO TEZKEHO STROJIRENSTVI, MINISTERSTVO PRESNEHO STROJIRENSTVI A MINISTERSTVO AUTOMOBILOVEHO PRUMYSLU A ZEMEDELSKYCH STROJU.) Praha, Czechoslovakia, Vol. 9, no. 6, June 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959. Uncl.

VODSEDALEK, J.

"Protective Explosion Membranes." p. 807. (STROJIRENSTVI. Vol. 4, No. 11, Nov. 1954; Praha, Czech.)

So: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 4, April 1955, Uncl..

VODSEDALEK, J.

"Internal Dumping As a Criterion for the Selection of Steel for Turbine Blades." p. 824
(STROJIRENSTVI, Vol. 3, No. 11, Nov. 1953) Praha, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4, April 1954. Unclassified.

VODSEDALEK, Josef, inz., CSc.

Main requirements for gas turbine blade material and typical properties of high-temperature materials. Zpravodaj VZLU no.1: 5-12 '63.

Vodshedchenko B M

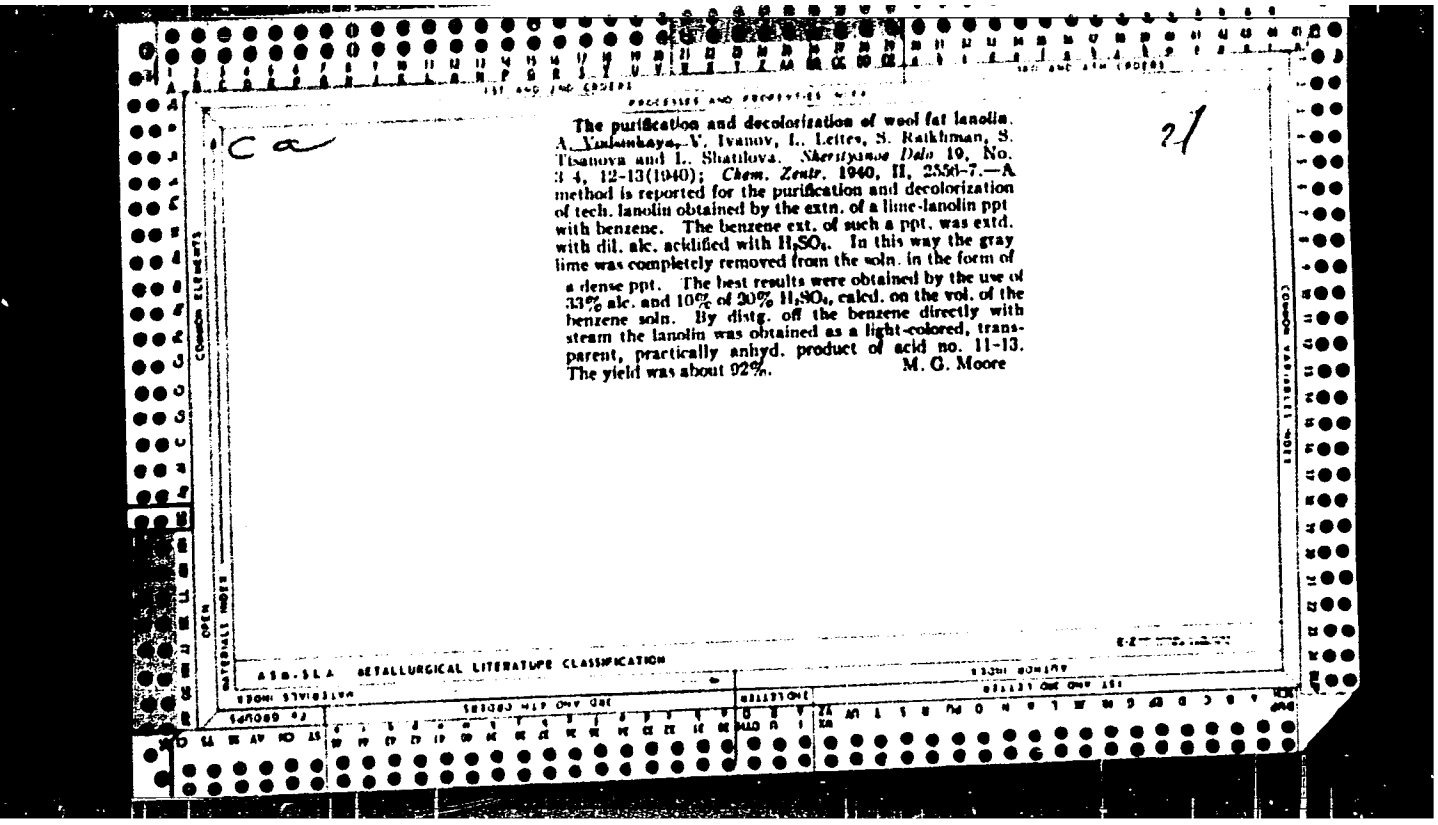
KONTOROVICH, I.Ye.; VODSHEDCHENKO, B.M.

Determining the critical range of brittleness of polished specimens under tension. Zav. lab. 23 no.11:1362-1365 '57. (MIRA 11:1)
(Steel--Brittleness)

VODSEDYALEK, I.; DAVIDENKOV, N.N.

Experimental investigation of inner energy dissipation by the dynamic hysteresis loop method. Zav.lab. 27 no.8:1034-1039 '61. (MIRA 14:7)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut materialov i tekhnologii, Praga.
(Steel--Testing) (Hysteresis)



The purification and decolorization of wool fat lanolin. A. Yanishaya, V. Ivanov, L. Lettes, S. Raikhman, S. Tsanova and L. Shatilova. *Sherstyanoe Delo* 19, No. 3/4, 12-13(1940); *Chem. Zentr.* 1940, II, 2556-7.—A method is reported for the purification and decolorization of tech. lanolin obtained by the extn. of a lime-lanolin ppt with benzene. The benzene ext. of such a ppt. was extd. with dil. alc. acidified with H_2SO_4. In this way the gray lime was completely removed from the soln. in the form of a dense ppt. The best results were obtained by the use of 33% alc. and 10% of 20% H_2SO_4, calcd. on the vol. of the benzene soln. By distg. off the benzene directly with steam the lanolin was obtained as a light-colored, transparent, practically anhyd. product of acid no. 11-13. The yield was about 92%.

M. G. Moore

VODSLON, F.

GEOGRAPHY & GEOLOGY

Periodicals: ZA KRASAMI DOMOVA Vol. 4, no. 7, July 1958

VODSLON, F. 11 th Congress of the Communist Party of Czechoslovakia shows us the way forward. p. 145.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5, May 1959, Unclass.

VODUNOV, N.

Operations officers on duty. Pozh.delo 3 no.8:11-12 Ag '57. (MLRA 10:8)

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VODUSEK, A.

"Dust in industry, especially in metallurgy" by Miloslav Havelka. Reviewed by A. Vodusek. Rud met zbor no.1:58 '62.

VODUSEK, A.

"Control of airborne dust" by W.D. Bamford. Reviewed by A. Vodusek.
Rud met zbor no.2:165-166 '62.

VODUSEK, A.

"Aerosols" by Kvetoslav Spurny and others. Reviewed by A. Vodusek.
Rud met zbor no.1:57-58 '62.

VODUSEK, A.

"Exploitation of mines" by V. Vidal. Vol. 2: "Transportation, ventilation, and general services in the pit." Reviewed by A. Vodusek. Rud met zbor no.1:45-46 '62.

VODUSEK, A.

"Exploitation of mines" by V. Vidal. Vol. 2: "Transportation, ventilation, and general services in the pit." Reviewed by A. Vodusek. Rud met zbor no.1:45-46 '62.

VODUSEK, R.

Methods of determining the expected precision of opening.

p. 259 (Rudarsko-Metalurski Zbornik) No. 3, 1957, Ljubljana, Yugoslovia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

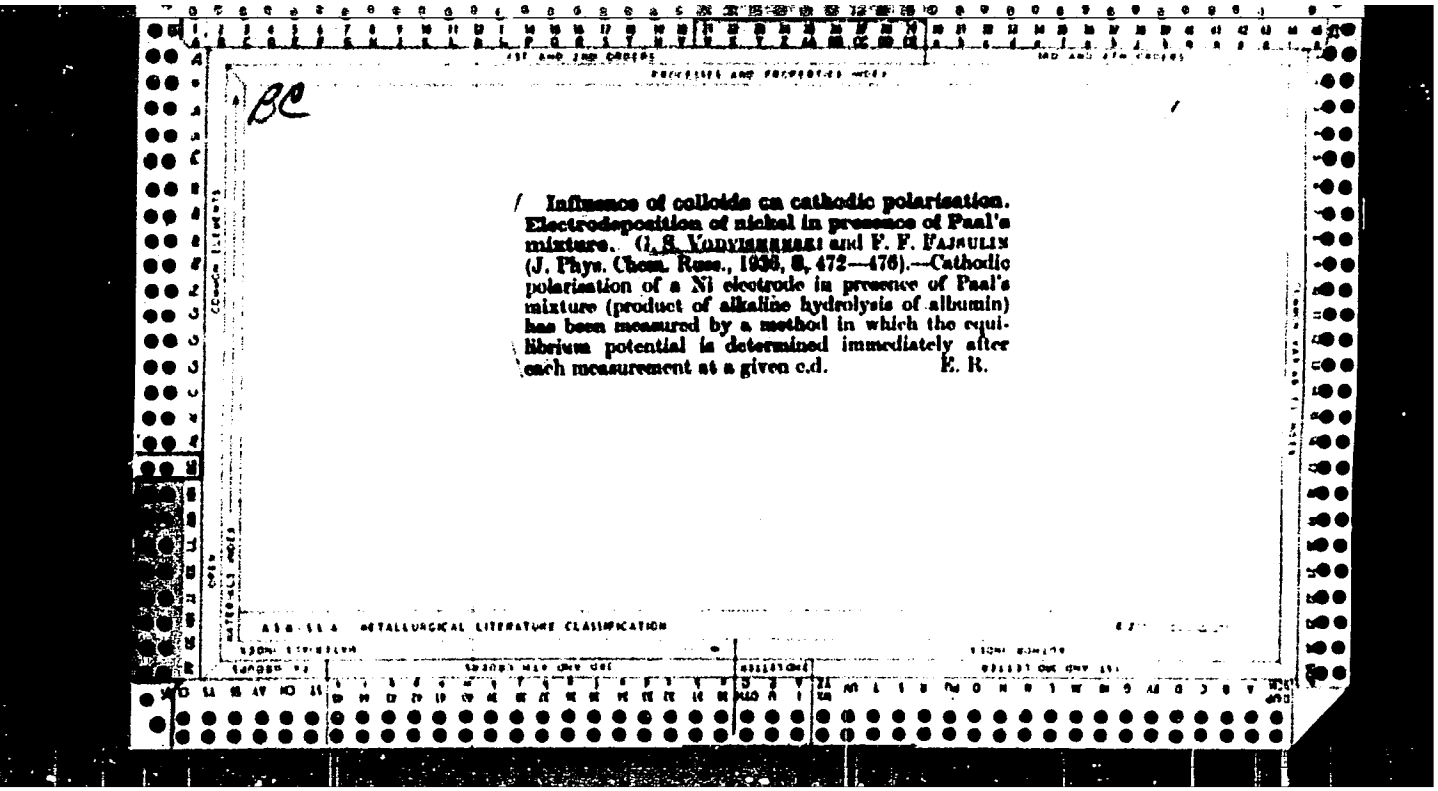
VODUSEK-SKOPAL, Aneska, inz.

Dust in foundries. Livar vest 10 no. 2/3:63-69 '63.

1. Oddelek za montanistiko.

VODUSEK-SKOPAL, A.

"Reducing the dust formation in blown materials" by Günther Schramm. Reviewed by A. Vodusek-Skopal. Rud met zbor no.2:197 '62.

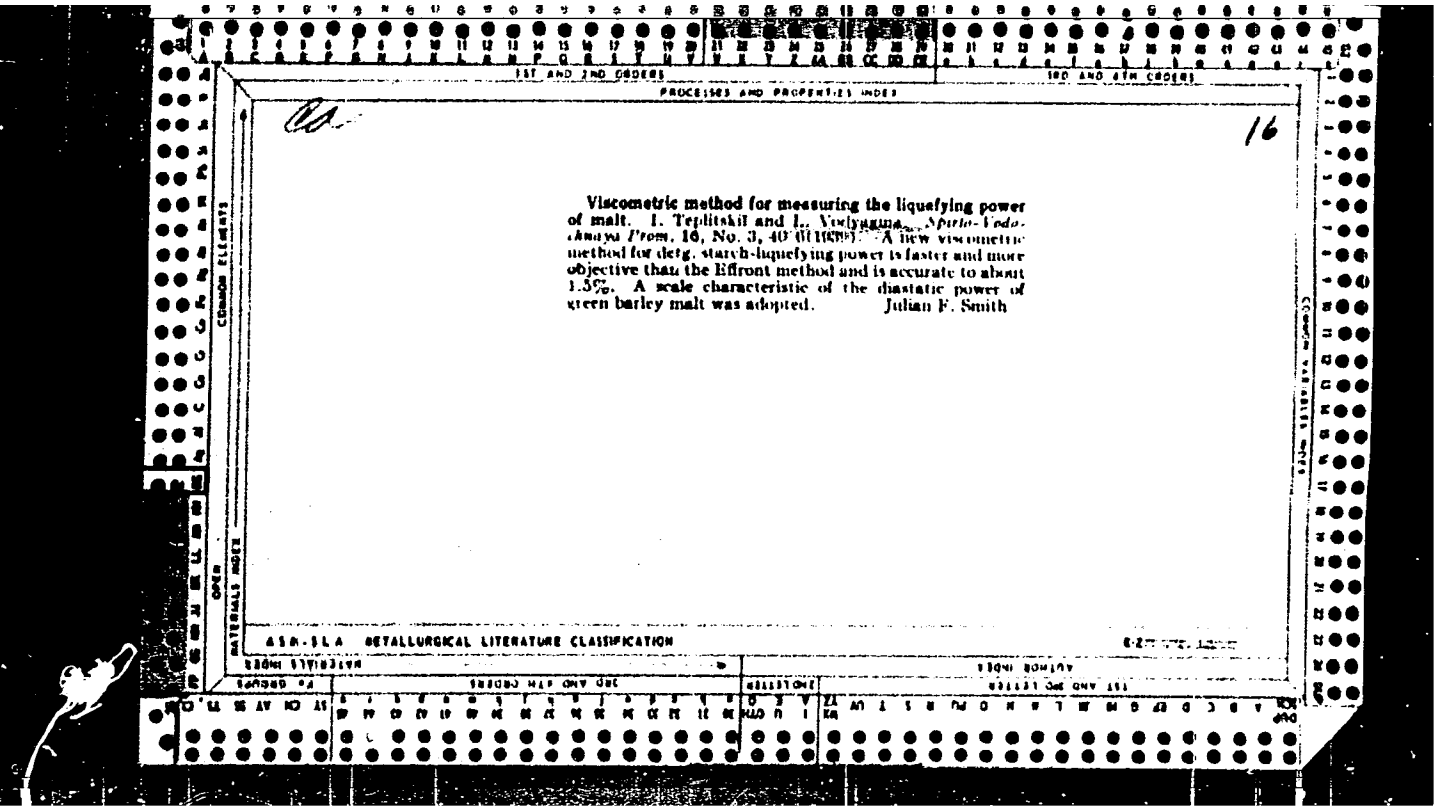


BC

Influence of colloids on cathodic polarisation. Electrodeposition of nickel in presence of Paal's mixture. (I. S. YORDYSHEVSKII and F. F. FAINULIN (J. Phys. Chem. Russ., 1938, 8, 472—476).—Cathodic polarisation of a Ni electrode in presence of Paal's mixture (product of alkaline hydrolysis of albumin) has been measured by a method in which the equilibrium potential is determined immediately after each measurement at a given c.d. E. R.

A 38-54 A METALLURGICAL LITERATURE CLASSIFICATION

VODYAGINA, L.
A. MALCHENKO, Spirto-Vodochnaya Prom. 16, n. 11, 38-41, 1939



16

Viscometric method for measuring the liquefying power of malt. I. Teplitskii and L. Vetlyugina. *Spirto-Vodo-Likernaya Prom.* 16, No. 3, 40 (1939). A new viscometric method for detg. starch-liquefying power is faster and more objective than the Effront method and is accurate to about 1.5%. A scale characteristic of the diastatic power of green barley malt was adopted. Julian F. Smith

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BERGER, A.Ya., prof.; VODYAKHO, I.M., inzh.; ORANSKIY, M.I., kand. tekhn. nauk; FEDOROV, V.F., inzh.; POMENKO, Yu.A., inzh.

Induction motors with protective casings. Elektrotekhnika. 36 no.9:18-19 S '65. (MIRA 18:9)

L 5371-66 EWT(1)/EPA(s)-2

ACC NR: AF5024577 SOURCE CODE: UR/0292/65/000/009/0018/0019

AUTHOR: Berger, A. Ya. (Prof.); Vodyako, I. M. (Engr.); Fedorov, V. F. (Engr.); Fomenko, Yu. A. (Engr.); Oranskiy, M. I. (Candidate of technical sciences)

ORG: none

TITLE: Induction motors with protective enclosures

SOURCE: Elektrotekhnika, no. 9, 1965, 18-19

TOPIC TAGS: induction motor

ABSTRACT: The induction motors whose stator winding -- and sometimes also the rotor -- are protected against corrosive medium by a nonmagnetic-material enclosure are considered. Simple formulas based on an equivalent circuit are offered which allow for the variation of motor characteristics due to the presence of the enclosure. Three induction motors (A51-4, A52-4, and A-42-2) equipped with 1Kh18N9T stainless-steel enclosures of different thicknesses and lengths were tested at 50 cps; also one of the motors was tested with a copper enclosure. These conclusions are reported: (1) The losses in the special-enclosure motors are higher and their specific power is lower than those of conventional motors; (2) Protective enclosures having

Card 1/2 UDC: 621.313.333.2

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L 5371-66
ACC NR: AP5024577

minimum thickness and length and a high resistivity are recommended; (3) The protective enclosure has no effect on the motor short-circuit parameters. Orig. art. has: 1 figures, 5 formulas, and 4 tables.

SUB CODE: EE/ SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 003

Card 2/2

VODYAKOV, I., polkovnik; IONOV, N., podpolkovnik.

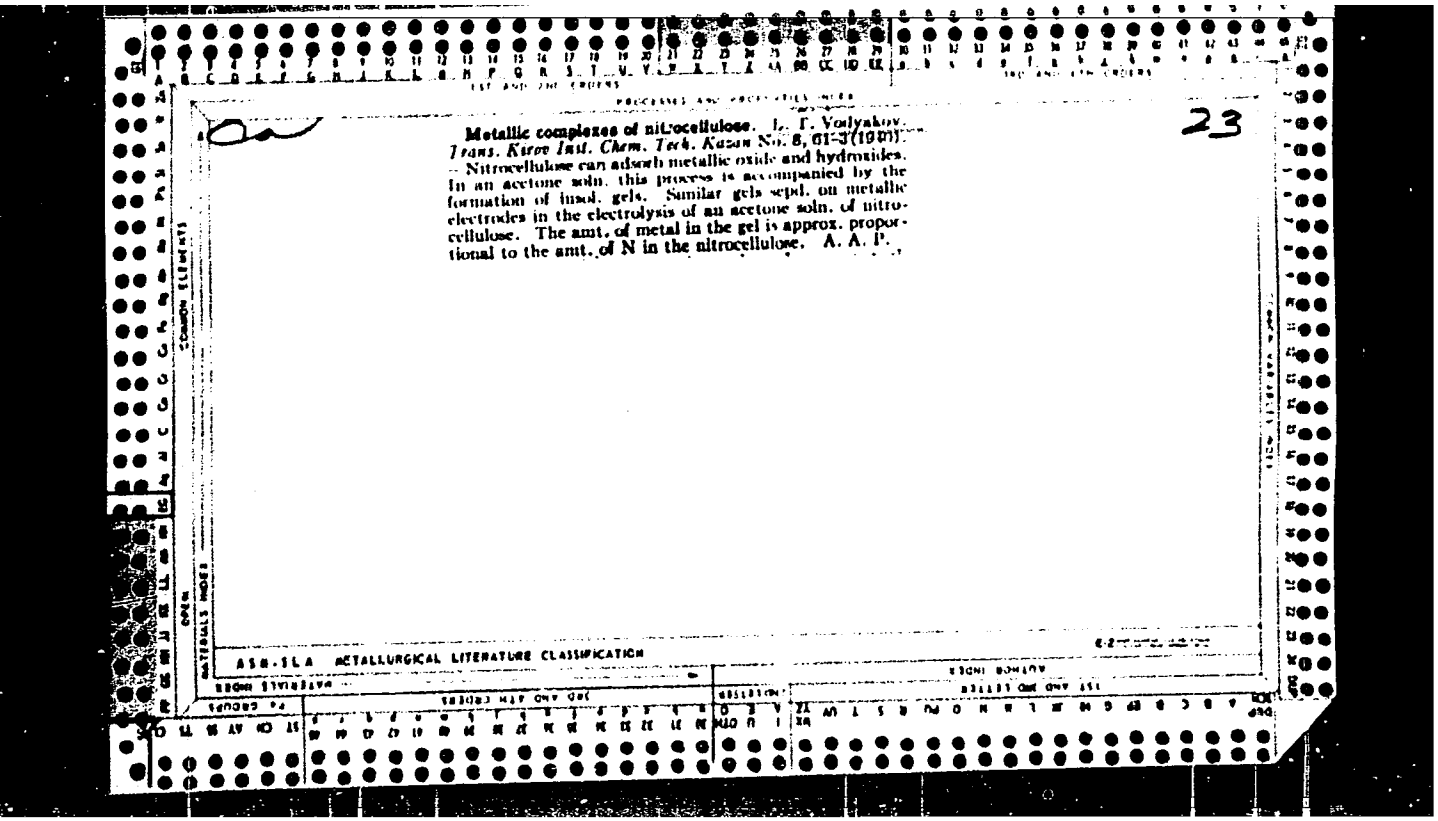
Anglo-Franco-Israeliggression against Egypt; review of military operations. Voen.vest.36 no.2:79-84 F '57. (MLRA 10:3)
(Middle Eastern War, 1956)

VODYAKOV, I., podpolkovnik.

Defensive warfare of infantry units in the Turkish Army. Voen. vest. 36 no.3:68-74 Mr '56. (MLRA 9:8)
(Turkey--Army--Infantry)

VODYADKOV, I., podpolkovnik.

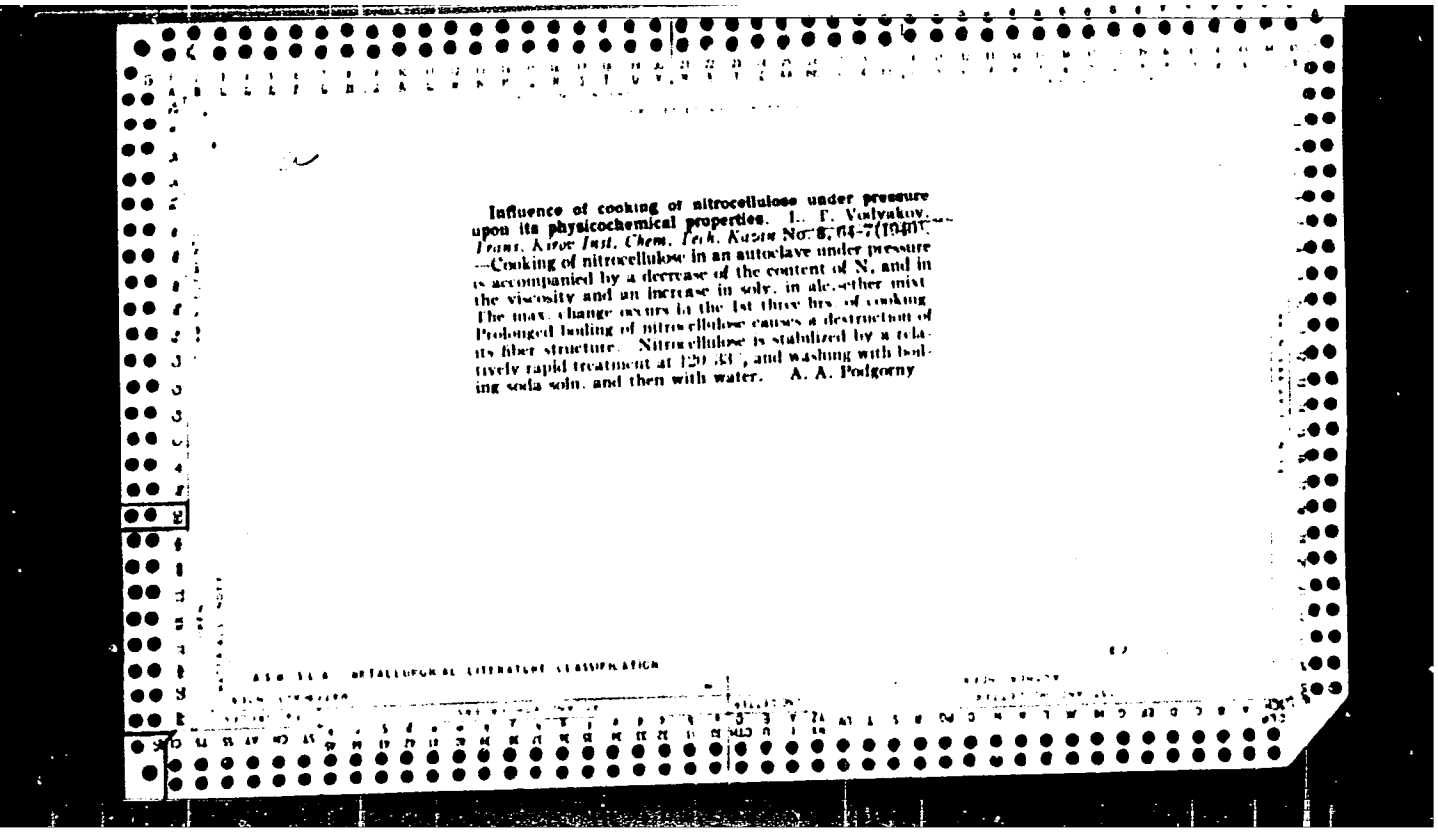
Offensive combat of infantry units of the Turkish Army. Voen. vest. 36 no.5:84-87 My '56. (MLRA 9:8)
(Turkey--Army--Infantry)



23

Metallic complexes of nitrocellulose. L. I. Vodyakov. *Trans. Kirov Inst. Chem. Tech. Kazan* No. 8, 61-3(1939). — Nitrocellulose can adsorb metallic oxide and hydroxides. In an acetone soln. this process is accompanied by the formation of insol. gels. Similar gels sepd. on metallic electrodes in the electrolysis of an acetone soln. of nitrocellulose. The amt. of metal in the gel is approx. proportional to the amt. of N in the nitrocellulose. A. A. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Influence of cooking of nitrocellulose under pressure upon its physicochemical properties. L. F. Volyakov. *Trans. Kirov Inst. Chem. Tech. Kazan* No. 8, 64-7(1940).—Cooking of nitrocellulose in an autoclave under pressure is accompanied by a decrease of the content of N, and in the viscosity and an increase in solv. in alc.-ether mixt. The max. change occurs in the 1st three hrs. of cooking. Prolonged boiling of nitrocellulose causes a destruction of its fiber structure. Nitrocellulose is stabilized by a relatively rapid treatment at 120-30°, and washing with boiling soda soln. and then with water. A. A. Podgorny

VODYAKOV, L. T.

Fuel Abstracts.
Vol. XV No. 2
Feb. 1954
Manufactured Solids Fuels and Carbon Products: Properties

Effect of Peat Drying and Pressing Pressure on Mechanical Properties of Briquettes. Vodyakov, L. T. (Torf. Prom. (Peat Ind., Moscow), Feb. 1953 29, 30). Heating of wet peat favours increase of strength and density of briquettes. Density increases as pressure is increased up to 1000 kg/sq.cm. B.T.R.

USSR/Chemistry - Water Treatment VODYAKOV, L. T. FD 179

Card 1/1

Author : Vodyakov, L. T., and Koshkina, Ye. S.

Title : Softening of water with cationites based on Pliocene and Hauterivian clays.

Periodical : Khim. prom. 3, 53-54 (181-182), April-May 1954

Abstract : Deomonstrated that it is possible to prepare artificial cationites from Pliocene and Hauterivian clays, and that these cationites can be regenerated with sodium chloride after treatment of water. Data are listed in 3 tables. 2 USSR references are appended.

AYUPOV, R.Sh.; VODYAKOV, L.T.; CHUNAKOV, N.S.

Drying of artificial insole leather at high temperatures. Kozh.-obuv. prom. 7 no.8:19-22 Ag '65. (MIRA 18:9)

VODYAKOV, L. T.; CHUMAKOV, N. S.

"A study of the optimal conditions of drying synthetic leathers and tanned pasteboard."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Kazan' Chemical Technology Inst.

VODYAKOV, L.T.; VASIL'YEV, A.M., prof.

Composition of mineral pigments from Burtsevo ore field and prospects for their use. Trudy KKHTI no.14:111-115 '49.
(MLRA 12:11)

(Burtsevo pigments.(Tatar A.S.S.R.))

VODYAKOV, L.T.

Investigating certain physical and chemical properties of Kizicheskoya peat bogs. Trudy KKHTI no.15:109-112 '50. (MIRA 12:12)
[publ. '51]

(Kizicheskaya--Peat)

VODYAKOV, L.T.

Effect of peat drying conditions and of pressure values employed in pressing on the mechanical properties of the briquets obtained. Trudy KKHTI no.15:113-118 '50. [publ. '51]
(MIRA 12:12)

(Peat--Drying) (Briquets (fuel))

VODYAKOV, L.T.; ZINATULLOVA, G.Z.

Developing an efficient method of regenerating beech sawdust.
Trudy KKHTI no.16:71-76 '51 [Publ. '52]. (MIRA 12:12)
(Oils and fats) (Fur--Dressing and dyeing)